

**The Effect of Blockchain on Company Efficiency and Profit**

Nicolas Olivier

BU400: Senior learning community

Dr. Shani Carter

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Major: Business and marketing,

134 North Long Beach Avenue, Freeport, NY

(516)-636-9196

## Abstract

This paper takes a deep dive into blockchain infrastructure and how it could potentially benefit industries and businesses if they successfully implement it into their infrastructure. The breakdown of blockchain is explained through its molecular components and how secure blockchain is. A point was also made to include the negatives of blockchain to let the reader decide for themselves if they feel blockchain can aid society.

## Introduction

As we continue the technological revolution influenced by a mass pandemic, the world is yearning for innovations that allow us to communicate on a less personal and more mediated level while keeping the same sense of personal relationships. Although the thesis intends to present this technology to whoever is reading, everyone must understand the dynamics built around this technological advancement so that there are no predisposed biases. With the direction the world is heading toward when it comes to advancing technologically as a society, blockchain fits right into that progressive direction and can serve as a helpmate for increasing a company's efficiency. Many companies in various industries have adopted blockchain into their infrastructure to combat common problems their markets may face. A prime example of blockchain being adopted into an infrastructure would be the automotive industry, where they have been fighting against environmental issues and high manufacturing costs for the past decade. As a result, many of those automotive companies have collaborated to solve these problems using blockchain. With all the upside blockchain possesses, that does not exclude blockchain from its shortcomings. Blockchain is still relatively new and has some chinks in its

armor. With any new product on the market, issues will happen, but with time and continuous research, the use of blockchain systems will improve the efficiency of companies.

The concept of blockchain increasing company efficiency is related to United Nations Sustainable Development Goal (SDG) number 9, Industry, Innovation, and Infrastructure. The consistent growth in technology has allowed companies to progress in their respective industries. The SDG proved an important point stating that higher-technology companies were more resilient towards crises than their counterparts of lower technology. They also stated that 1 in 3 manufacturing businesses are affected negatively by a crisis. With advancements blockchain has in itself, it can potentially serve as another technological alternative to potentially help companies for not just the present, but the future.

## **Final Thesis Paper: The Possibility of Blockchain Being the Future (Lit. Review)**

### **Components of Blockchain**

#### **Components**

A basic description of blockchain would be that it is a disseminated network of computer systems linked with the internet. These components rely on two fundamental concepts, consensus and trust to efficiently work together to keep track of electronic transactions for whoever implements it (YouTube, 2017). On a more complex level, a blockchain comprises a series of blocks linked together in a chain. Each block consists of three critical elements that allow the system to operate smoothly. The first element of the block makeup is its data, which is responsible for providing transaction details (YouTube, 2017). That data is stored and registered in the system-assigned blocks through the confirmation of nodes. Nodes serve as an intersection point for a blockchain network to help maintain security. A simple example of a block's data

would be the detailed information of the sender, the receiver, and the total amount of money dealt with in the transaction.

The block's Hash is the second and most crucial element, also known as a code. A hash could be considered the fingerprint of a block, as each hash within the chain has its unique makeup (YouTube, 2017). Once the information about the block is confirmed by all of the nodes in this system, the block is solidified by being given a specific hash. The job of a hash is to identify the contents of each block registered in the network for the user. Depending on what type of blockchain system is being used, the user will engrain specific information that they want to be put into the first block, Called the “genesis” block (YouTube, 2017). It is to be made known that blockchain is a very particular network that does not veer off its program. Changing information inside the block will cause the hash to change, making it easy to detect changes by the user or users of that chain (YouTube, 2017). Strict computer codes enforce the rules of the blockchain, and their codes do not possess any ambiguity in their meaning. Because of this process, they cannot be not subject to human discretion or interference (Xu & Zou, 2020). Bringing us back to the main point, whatever data the user puts inside that block must be specific and align with their end goal and overall agenda. Otherwise, it could potentially lead to the failure of the individual's business infrastructure within the blockchain.

The final element in creating a blockchain Is the “hash of the previous block” because there would be no chain if only a single block of recorded transactions existed. The hash of the previous block is one of the keys to making blockchain as secure as it is, although there was a recent case where Binance, the world’s largest cryptocurrency exchange, was recently hacked (Forbes.com, 2022). Once the next block in the chain is confirmed and put into the network, it receives its hash, but it also includes the hash of the block created before it. This is a vital

security process because the more blocks added to the system, the higher the protection of the user's information from potential tampering (YouTube, 2017). Let us say there were five blocks of data within a chain; if someone were to tamper with the third block and change its hash information, it would then result in the change of all the blocks coming after because the fourth block contains the hash information of the third block. The fifth block has the knowledge of the fourth block. Once their hash information is altered, all the other blocks' code configurations change.

### **Security**

An increase in crypto innovation over the past several years has also led to a significant increase in crypto crimes reported. In 2020 it was reported a 24,057% increase in crypto crimes from 2016 (Rotundu, 2022). What is also shocking about this statistic is that the increase is directly proportional to increases in the value of Bitcoin), although the cryptocurrency market took a huge hit recently (Rotundi, V., 2022). FTX, one of the largest known crypto exchanges, collapsed due to a lack of liquidity and mismanagement of funds (nerdwallet.com, 2022).

Blockchain should not be held responsible for the collapse of the crypto market for two reasons. First, blockchain is not limited to just one market. Multiple industries can use blockchain depending on the business's needs within that industry. Second, blockchain follows a strict algorithmic protocol that does not allow it to act maliciously. Part of blockchain's security relies on a 3-part operating consensus. The names of these operating systems are machine consensus, governance consensus, and market consensus (Xu & Zou, 2022). A consensus is a decision or an opinion that is accepted by a group of people, or in blockchain's terms, by the system itself.

### **Machine Consensus**

Blockchain's technological structure allows it to be useful in many different industries and is a key part of making blockchain what it is. Strictly referring to blockchain's molecular makeup, it aims to ensure the nodes in its peer-to-peer network share the same copy of a distributed ledger in case of harmful cyber-attacks and irregular communication within the chain (Xu & Zou, 2022). To get a better understanding of this process, you must understand what nodes are. A node's job is to serve as a gateway within the blockchain network to confirm a transaction. Nodes can also be physical equipment connected to a network, in which they can perform specific duties like creating, receiving, or ascending data across a blockchain channel (Abrol; blockchain-council.org, 2022).

An example could be a person who is running the blockchain network from their home, and they are using another physical system like a laptop with its own MAC address so that the laptop's identification can be verified. The user would now have access to use that laptop as a physical node for producing, receiving, or moving data. The action of a user controlling the physical node is called a "miner". On a deeper note, a node's function occurs when a miner seeks to add a new block of transactions to the blockchain. The legitimacy of a block determines whether the miner accepts or declines the transaction (Abrol; blockchain-council.org, 2022).

An internal form of machine consensus is proof of work (PoW). PoW is a mechanism within a blockchain network that slows down the creation of new blocks by requiring miners to solve a mathematical puzzle to confirm the transaction's legitimacy (YouTube, 2018). Making the user complete a puzzle seems childish but doing so allows for others participating on the network to be notified quickly enough of the change so that the rest of the users can make a consensual decision to confirm or deny any change (YouTube, 2018). The first miner within the PoW network to solve the hash equation receives an award from the network. Because the PoW

network gives larger rewards to miners with better quality equipment, it has led to a situation where miners are creating mass mining farms that use an excess of electricity to solve the equations (YouTube, 2018). This is an extremely important topic because technology is not the only important application of knowledge. The knowledge of our world and how to preserve its health is an integral part of our existence and improving one form of the world at the cost of another is potentially catastrophic to our people's well-being and safety. A recent study identified a significant increase in energy consumption from December 1<sup>st</sup>, 2020 – December 1<sup>st</sup>, 2022. PoW miners have also been known for creating what is known as mining pools to raise their hash power and increase their chances of receiving mining rewards that could be distributed evenly amongst the group (Youtube, 2018). The act of a person strengthening their processing power irregularly through mining pools contradicts blockchain's intended duty. The actions conducted within mining pools create a more centralized operating system leaning away from the blockchain's intended decentralized infrastructure (YouTube, 2018). The environmental and structural drawbacks of PoW systems have sparked other crypto exchanges to make the switch over to a new system of consensus.

PoW was heavily used by nodes in the earlier stages of Ethereum (crypto exchange platform) to find the hash of their transactions, but the environmental hazards motivated the company to switch its machine consensus to a more productive and safer version called Proof-of-Stake (PoS). Ethereum believed it would help prevent users from double spending on their network (ethereum.org, 2022). Unlike the system of PoW, PoS uses validators to confirm transactions and requires them to mint or forge new blocks (YouTube, 2018). For a user (node) or users to become a validator, they are required to make a deposit to the network that way every other node within the network is held responsible if the system fails (YouTube, 2018). Smaller

businesses are great examples to help gain a better understanding of what PoS is. For example, a well-known independent contractor of a small sports performance business wants to promote a product for a respected company. The two parties then come to an agreement to use a blockchain platform to finalize their agreement. Depending on what platform the two companies choose, whether it be Coinbase, Ethereum, or any other exchange platform using PoS, the agreement is installed in the blockchain system and stored as a hash in a block, making them nodes. If the two nodes would like to become validators over the block, whoever of the two invested more into the network as a stake is given a higher chance of being randomly selected to check over the validity of transactions within the block. Once the transactions are successfully processed, the chosen node becomes the validator and can sign off on the block and add it to the chain. You might now ask, how can the other node in the agreement tell if the validator is being truthful about the validity of the block? PoW regulates the nodes by penalizing the offender with a percentage of their stake significantly reduced if fraudulent transactions were confirmed. With a multitude of machine consensus options, blockchain has to offer, blockchain can serve as a useful tool in ensuring the protection of companies (Youtube, 2018).

### **Governance Consensus**

Another valuable process in blockchain's consensus info structure is governance consensus. Governance consensus pertains to members of a blockchain community that all agree on a decision or decisions that benefit the group as a whole (Xu & Zou, 2022). The unified decisions of the group are a crucial element in the stability and security of blockchain. If individuals fail to come to an agreement or deviate from the consensus rules, the possibility of governance consensus is broken, leaving companies susceptible to collapsing (Xu & Zou, 2022).

### **Market Consensus**



Market consensus deals with transactions of tokens that are traded with each other or with assets outside of the blockchain system. Depending on the equilibrium of the market price is, determines the state of the market consensus (Xu & Zou, 2022). Each form of consensus has some type of relationship with the other that affects blockchain as a whole. If there was malicious behavior taking place amongst the members of governance consensus and the system were to fail for a company using blockchain, it could lead to malfunctions within machine consensus. The failure of the machine consensus then would have an effect on the integrity of the market consensus.

### **Difference Between Blockchain Platforms**

Today, new technology is often complex and is not created in a way to complete a particular task. New technology is structured and coded to take care of a multitude of needs for a consumer regularly; the same goes for blockchain and its platforms. Depending on what type of network a company conducts business on, whether it be a public, permissioned, or private network, or what the company needs to be protected from or track within the industry, determines which blockchain platform is selected ([leewayhertz.com](http://leewayhertz.com), 2022).

Small business owners and large companies need to know what type of blockchain platform they want before picking one. You can install a platform whose ledger type is permissionless, like Ethereum so that you can have more control over the decisions of your transactions made ([leewayhertz.com](http://leewayhertz.com), 2022). You can want the opposite in your ledger type and get a blockchain platform that requires permission to maintain equilibrium between a partnership. If a company wants to have the ability to configure official contractual electronic agreements on the blockchain network called a smart contract, the company selects a certain platform that provides that need.

## Smart Contracts

This brings us to our next topic of discussion, the use of smart contracts within the system of blockchain. Smart contracts are decentralized agreements with built-in computer code stored on a blockchain (Sklaroff, 2017). The goal of smart contracts is to remove some of the inefficiencies that paper contracts may face. Examples of inefficiency for traditional contracts can be breaches of contracts, slow processing, or manipulation tactics. Smart contracts can mitigate the possibility of a breach by forcing the people agreeing to the contract to honor their original agreement (Sklaroff, 2017). The rigid quota of smart contracts reduces the negotiation flexibility of nodes once they have finalized the smart contract.

## Advantages and Disadvantages of blockchain

### Disadvantages

As much as blockchain may get recognized for its benefits, some factors about blockchain are not too appealing. As was mentioned before, the process of mining blockchain blocks has had considerable negative effects on energy consumption for the past several years (digiconomist.net). Large amounts of energy being consumed could potentially lead to power outages or even fire hazards if one of the mining farms were not kept under safe conditions. Blockchain's strict infrastructure might not be conducive for everyone, as some people might want the ability to opt out of a contract. Once the people within the network agree to a contract, they are bound to the contract by being confirmed as nodes in a blockchain system (YouTube, 2018). Being an integral part of the machine consensus, they are held to certain rules backed by the system. Blockchain being recognized as a useful system in the tech world is still relatively new due to it just recently bursting onto the scene around four years ago. The lack of expertise in

the technology has left blockchain vulnerable to hackers and skilled criminal organizations (Rotundu, 2022). This is the most alarming problem because blockchain's reputation relies on its word of being a highly secure AI network.

### **Advantages**

On the other hand, the problems that blockchain may face do not entirely define the potentialities of what it can bring to companies. Blockchain still offers services that help many different companies across several different industries. A consensus of 37 major automotive and tech companies, Toyota and General Motors being of the group, have banded together to help tackle the challenge of making vehicles more widely accessible to the public with blockchain technology (Dobrevva, 2019). The ability to create affordable cars would be able to significantly help automotive companies because that could potentially increase sales rates of companies, generating more money for each other. Blockchain has also played a role in the retail industry. Companies like Home Depot and Walmart Have joined blockchain systems themselves to help ensure the safe travel of their products being transferred from destination to destination (Brown, 2021). Blockchain offers a flexible system that gives entrepreneurs or companies the option of tailoring the blockchain system to their business infrastructure depending on the individual's particular needs.

### **Versatility of Blockchain**

#### **Ways blockchain is used**

As mentioned before, blockchain is a very flexible system that can be used in many different industries. Automotive and Retail industries have formulated business plans revolving around blockchain, but blockchain can offer so much more. The county of Jordan in the Middle East has proposed ideas to fully integrate the blockchain system into the government's financial

department, amid the mass pandemic that took place back in 2020 (Khasawneh, Oquab, 2022). By Jordan linking blockchain to its governmental e-accounting systems, Khasawneh believed that they would be able to improve policies and decisions that help manage Jordan's health crisis from COVID-19 (Khasawneh, Qquab, 2022).

### **Hypothesis**

After concluding my research and taking the pros and cons of the structure of blockchain, I believe that if companies were to implement blockchain into their platform then the company's efficiency would increase. The ability to measure efficiency for a company can be difficult, so my data research consisted of me analyzing the financial data of a company's annual profit, revenue, and Income numbers. I planned on calculating the productivity of a company, but that too became difficult to analyze because productivity is another element that is difficult to judge solely by numbers.

### **Methods**

#### **Hypothesis**

The use of blockchain technology will improve the efficiency of companies.

#### **Subjects**

As part of my research, I looked at the financial data of five companies in four separate industries. I wanted to gather more companies to research but due to time constraints, it was very difficult for me to do so.

Companies: Home Depot, AT&T, Ford Motors, T-Mobile, and Pfizer were all the companies that I studied and analyzed the data for.

### Home Depot:

Home Depot is the world's largest home improvement retailer in the U.S. founded on June 1978. Their specialties consist of building materials, home improvement supplies, hardware, and various other products that help customers with their daily needs.

### AT&T:

AT&T Is an American multinational telecommunications company. The company was established in October 1983 and its main headquarters is located in the downtown Dallas area of Texas. They are currently the world's largest telecommunications company in revenue and the third-largest provider Of U.S. telephone services.

### Ford Motors:

Ford Motors is an American multinational automobile company Established on June 16th, 1903. They are headquartered in Dearborn, Michigan, and sell automobiles as well as commercial vehicles under the brand.

### T-Mobile:

T-Mobile is a multinational telecommunication company established on December 1999 and headquartered in Bonn, Germany. T-Mobile offers mobile broadband internet access for smartphones, basic phones, and tablets.

### Pfizer:

Pfizer is one of the world's largest biopharmaceutical companies. Founded in 1849, they serve to deliver breakthroughs in the pharmaceutical industry using science and technology.

### Measures

1. Because efficiency is a difficult variable to calculate, the variables that I will use for my data research are **Income**, **Revenue**, and **Gross Profit**.

- **Income** is an important part of this data research because the use of blockchain directly correlates with the efficiency of a company. If a company is more efficient in its work, it will then gain more income from its products.
- **Revenue** is important to the research because it serves as an indicator for a company based on the other two variables. If a company's income and profit are up, likely, its revenue will also increase. This leads back to the hypothesis that the efficiency of that particular company will increase.
- **Gross Profit** gives a clear indication of how a company stands in the ranks within its respective industry, making this data extremely important to the research.

Components of Study				
Data	Variables			
	Blockchain	efficiency		
		Income	Gross Profit	revenue
Instrument	Hormann Library, Peer reviewed topic articles	annual financial reports of Ford, Home Depot, AT&T, T-mobile, and Pfizer companies	annual financial reports of Ford, Home Depot, AT&T, T-mobile, and Pfizer companies	annual financial reports of Ford, Home Depot, AT&T, T-mobile, and Pfizer companies
Data Source	annual reports of publicly traded companies	annual reports of publicly traded companies	annual reports of publicly traded companies	annual reports of publicly traded companies
Type of data gathered	Quantitative	Quantitative	Quantitative	Quantitative
Types of scores produced	Total GNP	Indexed to 1982		

Adapted from: Rudestam, K.E. & Newton, R.R. (1992). *Surviving Your Dissertation*. Newbury Park, California: Sage Publications, Inc. page 140.

Hypothesis, Instruments, and Statistical Analysis						
Hypothesis	Instrument				Variable Relationships	Statistical Test
	Blockchain	efficiency				
		Income	Revenue	Gross Profit		
H1: The use of <b>blockchain</b> technology will improve the <b>efficiency</b> for a company.	Horrmann Library, Peer reviewed topic articles	annual financial reports of Ford, Home Depot, AT&T, T-mobile, and Pfizer companies	annual financial reports of Ford, Home Depot, AT&T, T-mobile, and Pfizer companies	annual financial reports of Ford, Home Depot, AT&T, T-mobile, and Pfizer companies	SC=PF+PD+RV	correlation; regression; line charts

Adapted from: Rudestam, K.E. & Newton, R.R. (1992). *Surviving Your Dissertation*. Newbury Park, California: Sage Publications, Inc. page 138.

### (c) Procedure

1. The statistical procedure I will use is Look at the financial records of each company from before and after they applied blockchain into their business. Then I will look to see if there is any legitimate documentation from the companies stating whether the implementation of blockchain has positively or negatively affected the company.
2. The procedure I used to locate the journal articles consisted of me using the Horrmann Library to direct myself to the business source premier. There, I looked up in the search bar **blockchain technology** “and” **efficiency** and got 541 articles. I found that the articles became too general and limited my search results by applying full text and peer reviewed to my search results. When I applied those two factors the search results went down to 105, where I found 10 solid articles to support my hypothesis.

3. The statistical procedure that I will use to conclude my hypothesis is using the annual financial reports of the companies that were previously mentioned. Each report provides the company's net income, revenue, and gross profit. Based on the company's annual reports, determines how much of a positive or negative change blockchain may have had. A two-year period was recorded before and after the year each company implemented blockchain into the business, giving a balanced outlook on the data.

## Results

Table 1 shows the financial data of Ford Motors from the years 2017 – 2021. Ford implemented blockchain into their company in 2019, so the numbers provided are two years before the implementation and two years after.

Table 1: *Ford Financial Income Statement, 2017 – 2021, In Millions*

<b>Income Statement</b>	Dec. 31, 2017	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2020	Dec. 31, 2021
Net Income	\$7,757	\$3,695	\$84	(\$1,276)	\$17,910
Revenue	\$145,653	\$160,338	\$143,604	\$115,894	\$126,150
Gross Profit	\$25,455	\$24,069	21,207	\$14,392	\$21,690
(Sec, 2022)					

Figure 1 shows that for the years 2017 and 2018, all of Ford's financial recordings were for the most part at its highest. From 2019 to 2020, their revenue and net income dropped significantly before picking back up slightly in 2021.



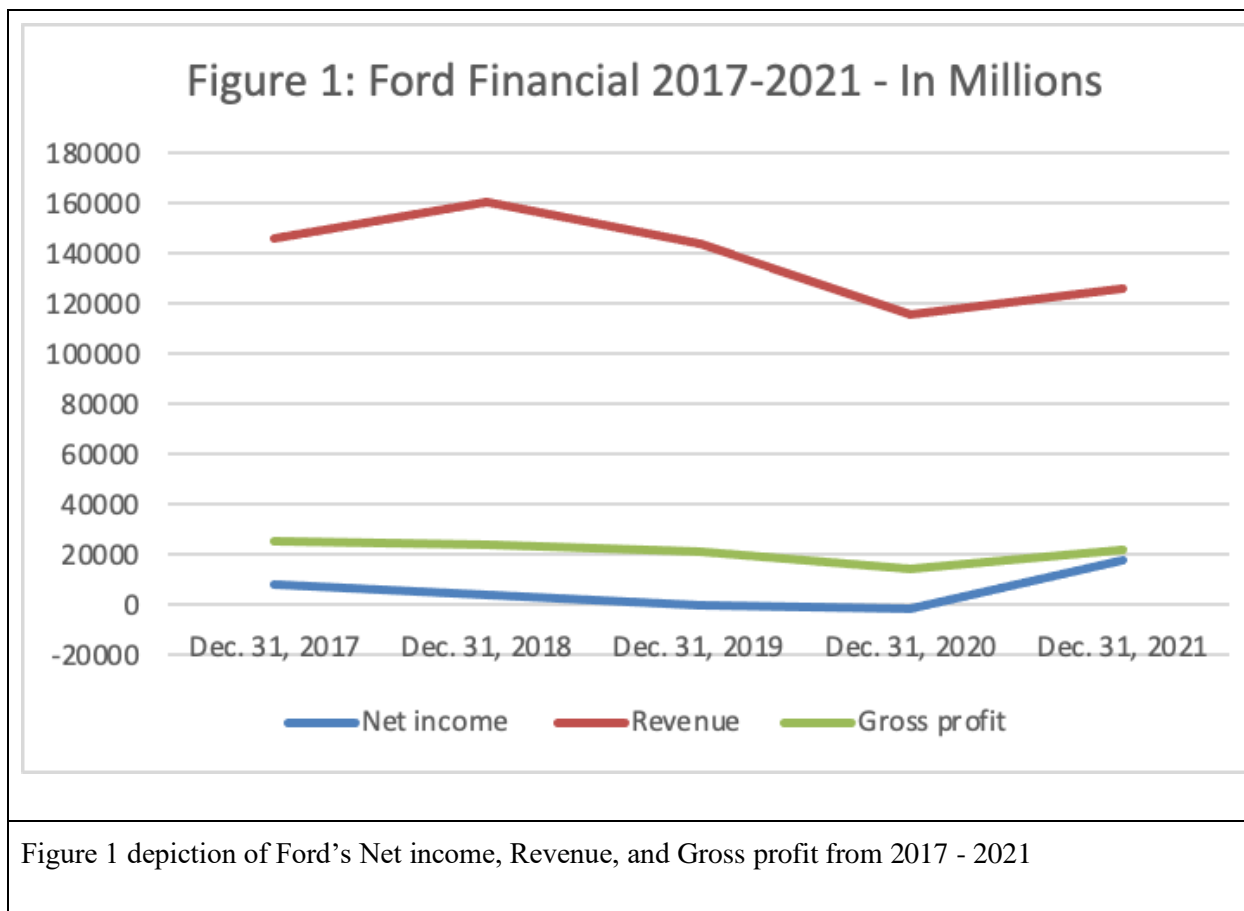


Table 2 shows the financial data of Home Depot from the years 2016 – 2022. They implemented blockchain into their company in 2018, so the numbers provided are two years before the implementation and two years after.

Table 2: *Home Depot Financial Income Statement, 2016 – 2020, In Millions*

<b>Income Statement (Abstract)</b>	Jan. 31, 2016	Jan. 29, 2017	Jan. 28, 2018	Feb. 03, 2019	Feb. 02, 2020
Net Earnings	\$7,009	\$7,957	\$8,630	\$11,121	\$11,242
Revenue	\$88,519	\$94,595	\$100,904	\$108,203	\$110,225
Gross Profit	\$30,265	\$32,313	\$34,356	\$37,160	\$37,572
(Sec, 2022)					

Figure 2 depicts that all of Home Depot's financial stats had increased steadily before taking a small, but significant jump in revenue in 2019. This was one year after the implementation of blockchain.

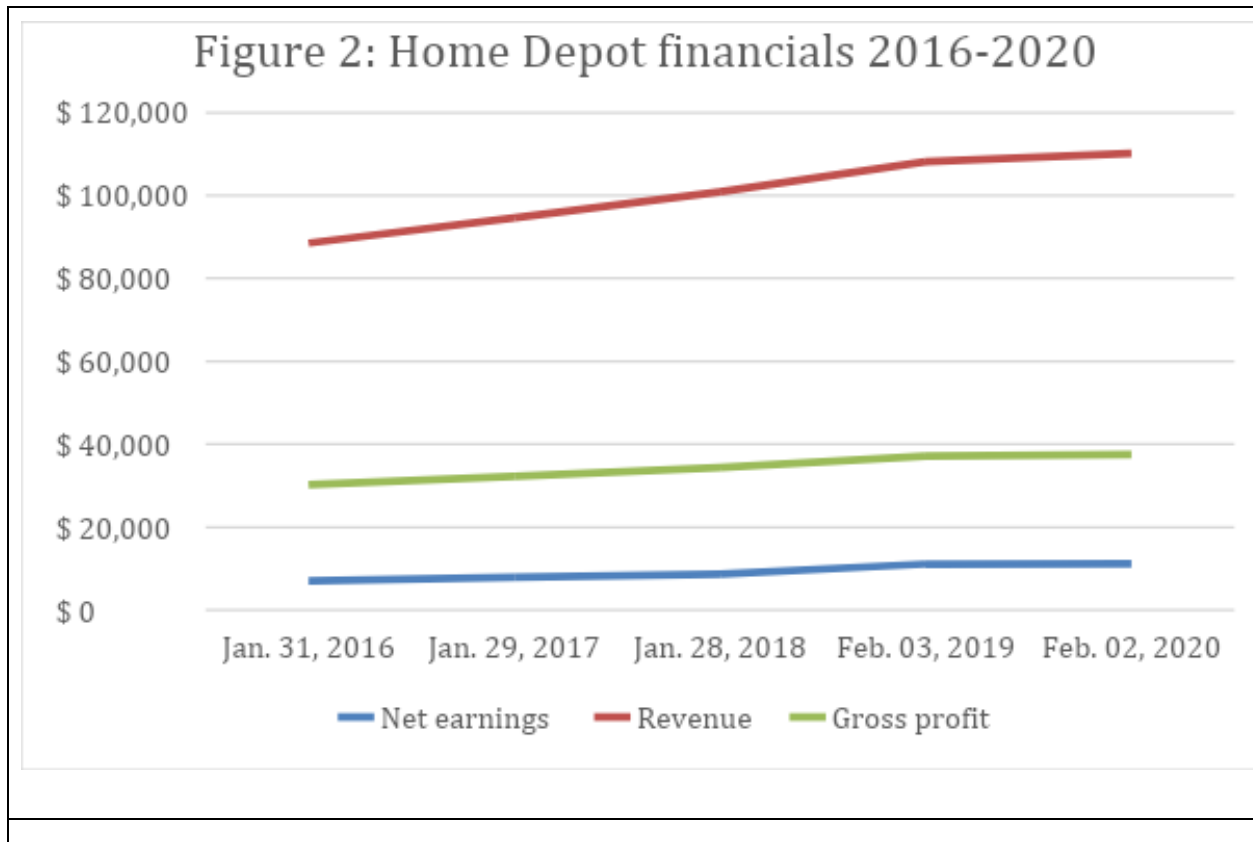


Table 3 shows the financial data of AT&T from the years 2016 – 2022. They implemented blockchain into their company in 2018, so the numbers provided are two years before the implementation and two years after.

Table 3: *AT&T Financial Income Statement, 2016 – 2020, In Millions*

<b>Income Statement (Abstract)</b>	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2020
Net Income	\$13,333	\$29,847	\$19,953	\$14,975	(\$3,821)
Revenue	\$163,786	\$160,546	\$170,756	\$181,193	\$171,760
Gross Profit	\$23,543	\$19,970	\$26,096	\$27,955	\$6,405
(Sec, 2022)					

Figure 3 shows that from 2016 to 2018 AT&T's financial stats fluctuated several times between each other. In 2019, one year after they implemented blockchain, their stats increased before plummeting the next year.

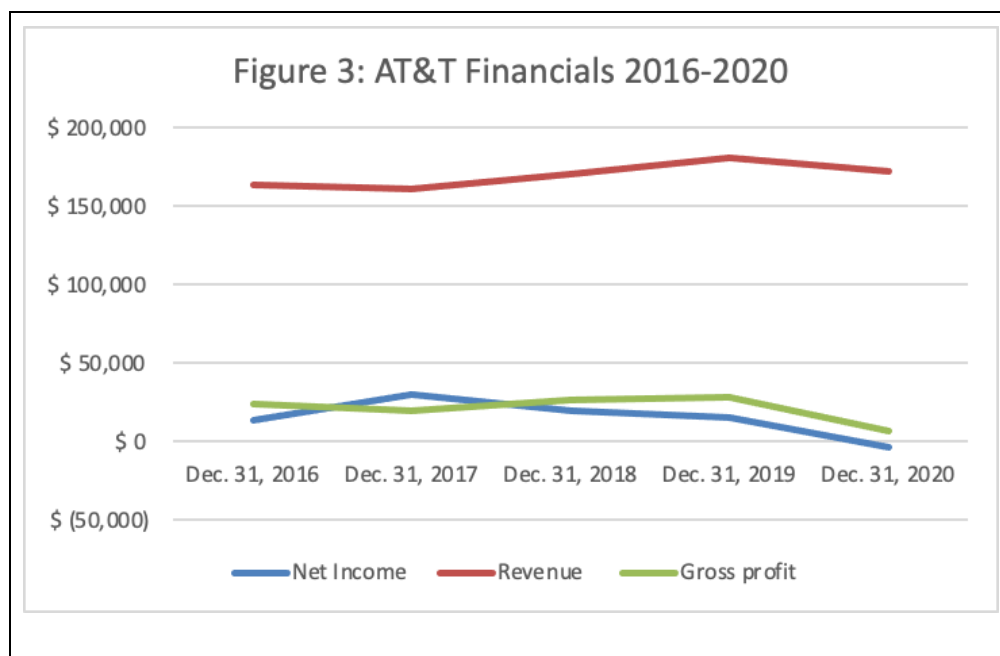


Table 4 shows the financial data of T-mobile from the years 2016 – 2022. They implemented blockchain into their company in 2018, so the numbers provided are two years before the implementation and two years after.

Table 4: T-mobile Financial Income Statement, 2016-2020, In Millions

<b>Condensed Consolidated Statements of Comprehensive Income-In millions</b>	Dec. 31, 2016	Dec. 31, 2017	Dec. 31, 2018	Dec. 31, 2019	Dec. 31, 2020
Net Income	\$1,460	\$4,536	\$2,888	\$3,468	\$3,064
Revenues	\$37,490	\$40,604	\$43,318	\$44,998	\$68,387
Gross Profit	\$26,671	\$28,996	\$24,964	\$26,477	\$40,121
(Sec, 2022)					

Figure 4 shows that T-mobiles numbers of its revenues, Gross profit, and Net income all increased through the years 2016 and 2017 and fluctuated between gradual increases and decreases throughout the next two years. In 2020 All of AT&T's finances dramatically increased.

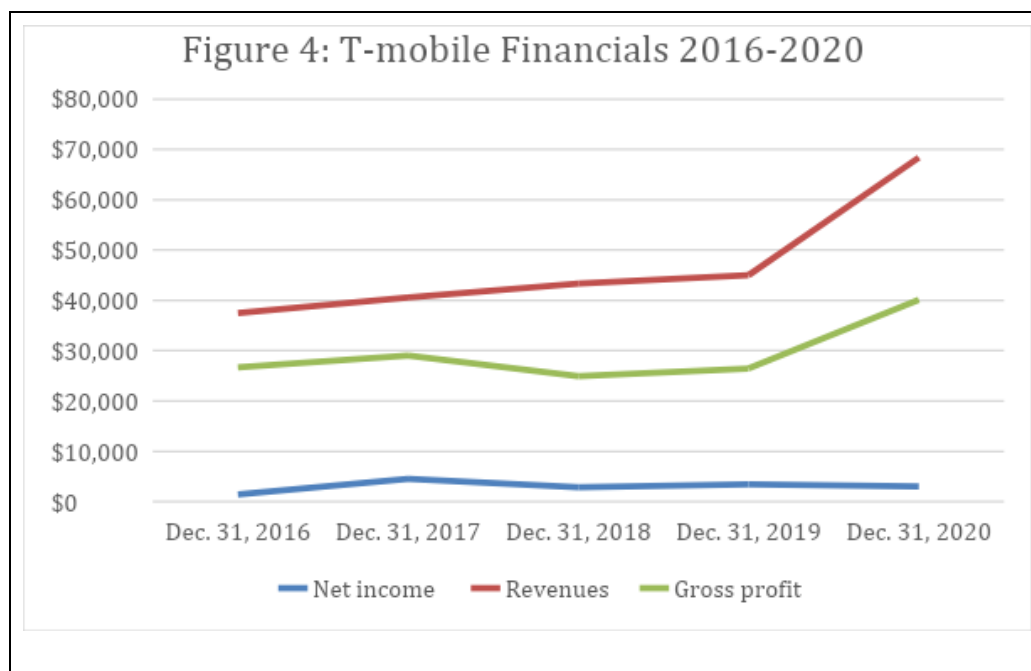
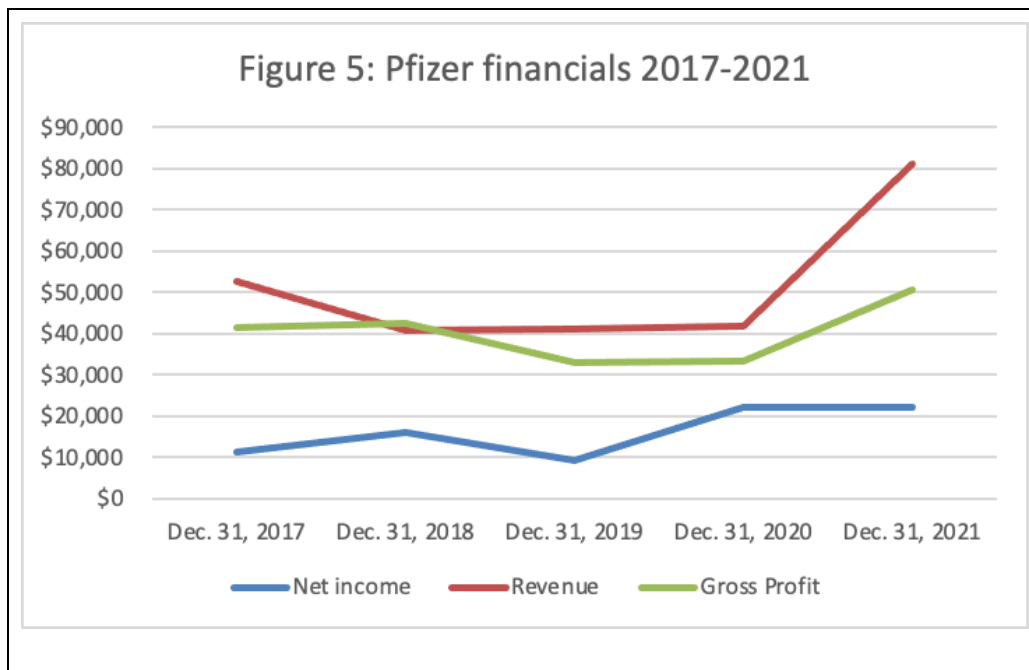


Table 5 shows the financial data of AT&T from the years 2017 – 2022. They implemented blockchain into their company in 2019, so the numbers provided are two years before the implementation and two years after.

Table 5: Pfizer Financial Income Statement, 2017-2021, In Millions

<b>Income Statement (Abstract)</b>	Dec. 31,2017	Dec. 31,2018	Dec. 31,2019	Dec. 31,2020	Dec. 31,2021
Net income	\$11,188	\$16,056	\$9,195	\$22,025	\$21,979
Revenue	\$52,546	\$40,825	\$41,172	\$41,908	\$81,228
Gross Profit (Sec, 2022)	\$41,318	\$42,399	\$32,851	\$33,167	\$50,467

Figure 5 shows that Pfizer was in fact going to some financial troubles, but in 2020 the companies finances increased significantly and shows that the numbers are likely to keep increasing.



## Discussion

Through the past several weeks, gathering and deciphering the financial data of companies to support my hypothesis stating, “Smart contracts within the system of blockchain improve efficiency for a company.” Has been interesting. I went into the research process assuming that every company implementing blockchain into their business would have immediate success because of the upside of blockchain’s security system. What I learned provided insight into how a company may or may not need blockchain based on non-controllable factors for financial success. The five companies researched showed insightful information. An important statistic to bring up is all the companies reviewed all implemented blockchains before the start of the COVID virus. This is a significant point to consider because the entire dynamic of business interaction was disrupted during this time, resulting in mass disruption of corporate stability. To fully grasp the importance of each company’s stat, it is necessary that “non-controllable factors” be broken down. A non-controllable factor is a phrase that I made up initially to help me to understand how circumstance (positive or negative) a company has no control over affects their profit.

An example of this can be natural disasters, where floods destroying a large sum of telephone poles in a specific area can directly affect the payment plan of members, disrupting the expected income for a significant telephone company in that area. Or a mass pandemic that altered how businesses (small or large) connect and interact with each other. That said, the reader impacts how much of an effect blockchain had on their company. I came up with my opinions on the data given by finding out when each company officially implemented the software. I then created a line graph posting the company’s net income, revenue, and profit two years before and after the system’s implementation in results to prove my hypothesis.

Automobile companies like BMW, Toyota, and Ford have served as essential forms of travel for years now. With the increase in technology came the need for higher-quality parts to help newer models of cars to run efficiently. Because most automobile companies sell worldwide, they often transport many parts to different headquarters. To help prevent expensive manufactured items from being misplaced, leading to unnecessary expenses. After researching financial data of automobile companies using blockchain, I realized and feel that automobile companies that incorporated blockchain into their company were successful during the Pandemic because of how much of a safety net blockchain's system offered, mitigating parts being lost by tracking parts since most companies had to lay-off many employees. I believe this prevented significant decreases in the financial deficits of companies.

The pandemic contributed significantly to the success of the home retail market, and Home Depot was one of the retail stores that experienced immediate success after installing blockchain. The transportation of products became a problematic way of business due to person-to-person restrictions. The initial intentions of Home Depot using blockchain were to help ensure all inventory was well-maintained and fully traceable. People around the world were forced to stay indoors from the virus, which forced them to stay in the house unless they needed important materials like food, home appliances, and tools. Home depot's specialty is supplying home appliances and tools, so the need for retail stores seemingly increased overnight. I feel as though blockchain fits the need of where Home Depot wanted to progress, and COVID-19 contributed to their goal by naturally forcing consumers to rely on their products and services.

## **Conclusion**

Based on the evidence presented to me over the course of this semester, I was able to prove that my hypothesis was correct, but to a certain extent. I realized that the success of many

businesses was predicated by factors that could not be controlled, like environmental Disasters or market crashes within an industry. A particular incident in the FTX collapse opened my eyes to see that people or companies that use blockchain to take advantage of the system often backfired and left businesses empty-handed. I learned a lot of new information that I plan to carry over into my next career.

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